

Necedah National Wildlife Refuge

Necedah, Wisconsin

PERSONNEL

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James C. Gritman - - - - - Forester
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Clifford Murphy	1/27/65	to	7/13/65	Laborer
Louis Pech	6/1/65	to	6/21/65	Carpenter
Joseph Coady	6/10/65	to	9/ 3/65	Summer Student (YOC)*
Jack Jasinski	7/19/65	to	8/27/65	Summer Student "
John R. Rector	6/14/65	to	9/ 3/65	Forestry Aid
William L. Renaker	6/15/65	to	9/ 1/65	Wildlife Aid
Paul E. Woggon	9/10/65	to	12/31/65	Maintenanceman, WAE
Elwood G. Woggon	11/22/65	to	12/31/65	Laborer

*Youth Opportunity Corps

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I. GENERAL

A. Weather Conditions.

	<u>Month</u>	<u>Precipitation</u>		<u>Max.</u> <u>Temp.</u>	<u>Min.</u> <u>Temp.</u>
		<u>Normal</u>	<u>Snowfall</u>		
January	<u>.68</u>	<u>1.02</u>	<u>9.40</u>	<u>43</u>	<u>- 29</u>
February	<u>.76</u>	<u>1.01</u>	<u>7.45</u>	<u>49</u>	<u>- 29</u>
March	<u>2.55</u>	<u>1.91</u>	<u>14.50</u>	<u>45</u>	<u>- 24</u>
April	<u>4.83</u>	<u>2.65</u>	<u>6.25</u>	<u>78</u>	<u>14</u>
May	<u>6.45</u>	<u>4.38</u>	<u> </u>	<u>87</u>	<u>26</u>
June	<u>1.90</u>	<u>4.98</u>	<u> </u>	<u>93</u>	<u>38</u>
July	<u>5.68</u>	<u>3.77</u>	<u> </u>	<u>96</u>	<u>40</u>
August	<u>6.30</u>	<u>3.33</u>	<u> </u>	<u>92</u>	<u>28</u>
September	<u>12.27</u>	<u>3.35</u>	<u> </u>	<u>84</u>	<u>32</u>
October	<u>1.71</u>	<u>2.27</u>	<u> </u>	<u>82</u>	<u>20</u>
November	<u>2.08</u>	<u>2.24</u>	<u>1.10</u>	<u>67</u>	<u>8</u>
December	<u>2.62</u>	<u>1.36</u>	<u>2.50</u>	<u>57</u>	<u>- 2</u>
Annual Totals	<u>47.83</u>	<u>32.26</u>	<u>41.20</u> Extremes	<u>96</u>	<u>- 29</u>

Temperature readings are provided from an official weather station on the Joe Gregar farm located near the east boundary of the refuge. Precipitation data is provided from an official rain gauge maintained at the refuge headquarters.

The 47.83 inches of precipitation received at Necedah this year is the highest recorded since records were first kept in 1940. January, February and March were extremely cold months with temperatures below zero much of the time. July was the only month in which hot temperatures persisted; the rest of the year temperatures were near normal or moderate.

- January On seventeen days during the month the temperature dipped below zero. On January 1, the ground was covered with 1 inch of snow. The heaviest snowfall of the month occurred on January 31, when $5\frac{1}{2}$ inches was recorded.
- February Cold weather persisted into February and fourteen days of zero or below zero temperatures were recorded. Seven inches of snow fell on February 12, the heaviest for the month.
- March March came in like a lion and left the same way. Many windy days were noted and cold weather persisted. A total of 14.50 inches of snow was recorded for March, a winter high.
- April Spring weather was delayed several weeks due to below normal temperatures. Rynearson Pool 1 was free of ice by April 15, but Rynearson 2 was ice-covered until April 21.
- May Nearly $2\frac{1}{2}$ inches of rain fell on May 26; this amount along with other frequent heavy rains resulted in above normal precipitation. For the most part May was a pleasant month. On May 29 and 30 temperatures dropped below freezing which killed most of the wild berry crops.
- June Temperatures averaged slightly above normal with precipitation recorded on only five days during the entire month.
- July Temperatures ranged far above normal with 90 degree readings recorded on three consecutive days. On July 14 funnel clouds passed over the refuge but caused no damage. Frequent heavy rains resulted in precipitation of 2 inches above normal for the month.
- August Heavy rains continued during August with nearly twice the normal amount received. Temperatures ranged far above normal until the last week when the temperature dropped to 28 degrees causing some damage to refuge farm crops.
- September The heavy rains of the previous two months was only a prelude of what was to come in September. On eight occasions over one inch of rain was recorded from the headquarters rain gauge. By the end of the month, 12.27 inches had fallen. This is a record high for a single month during the 25 years of record keeping at Necedah. Temperatures were mild and September frosts did not occur.

- October Mild temperatures continued into October and an unusually high reading of 80 degrees occurred on October 17. Cooler temperatures predominated for the rest of the month and the first snow flurries were received on October 23.
- November Below normal temperatures were common during most of November. The first accumulation of snow amounting to one inch was received on November 25. Strong winds in excess of 40 miles per hour occurred on November 27 and 28 but caused no damage.
- December Precipitation was above normal with almost the entire amount falling as 2.40 inches of rain on December 13. Two and one-half inches of snow fell during the month but most of this melted as a result of unusually warm temperatures. On twelve days during the month temperatures were 40 degrees or higher which is above normal for this month. A 57 degree reading was recorded on the 31st.

B. Habitat Conditions

1. Water

1965 went into the record books as the wettest year since record keeping began in 1940. Heavy spring runoff and several periods of heavy rains resulted in high water levels which required considerable manipulation of water control structures. In many cases water could not be passed rapidly enough to keep it from going over the tops of structures.

Snow conditions during the winter months were moderate but slightly above those of last year. Precipitation amounted to 3.99 inches during the first three months, most of which fell as snow. The spring thaw was characterized by rapid runoff and most of the structures on the smaller impoundments were threatened by high water. The new Pool 9 riser-stoplog structure (APW structure) washed out late in March because the design did not include diaphragms which would have prevented seepage along the culverts. All other refuge pools were at approved elevations during the spring runoff period.

Spring and summer precipitation was above normal and was more than sufficient to maintain approved elevations. Precipitation during the period April thru August totaled 25.16 inches. Frequent checks of control structures and water levels were necessary following heavy rains of over 2 inches in May, July and August. Additional water released from cranberry growers to the north of the refuge necessitated a closer watch of water elevations to protect structures. Rynearson Pool 2 was drained

in June for moist soil plant production and reflooded again in late September with no problems of a water shortage.

The period of September through December was no exception to abnormally high precipitation as another 18.68 inches were received. The 12.27 inches recorded in September was the highest amount for a single month since records were kept starting in 1940. Pools during September were above approved elevations despite efforts to pass water as rapidly as possible. Pools 13 and 27 had 7 and 8 inches of water respectively over the tops of the structures. Both of these structures sustained heavy losses of backfill and had to be sandbagged. The newly constructed emergency spillway on Pool 18 took much of the pressure off the main structure and allowed a more stable water management program there in spite of high water levels.

For the most part all pools were maintained at approved elevations or higher. There was a slight recession of some pools during June but August rains quickly brought levels back up.

2. Food and Cover

Food and cover conditions on the refuge were favorable throughout the year. Winter conditions were moderate and deer and upland game birds had an abundant food supply and sufficient cover. Deer were scattered throughout the better deer range and no yarding occurred. Present deer harvest will keep the population in balance which in turn will insure sufficient good quality food and cover for deer in the future. Upland game birds had an ample supply of mast, buds and weed seeds. By April the refuge agricultural units were snow free and providing rye browse for migrating geese, deer and upland game birds.

Nesting cover was sufficient for all wildlife species. In many cases vegetation was too dense and may have encouraged predator activity. Future management will be aimed at eliminating dense growths of vegetation to provide better nesting habitat. Frosts in late May killed most of the wild berry crops but there were still scattered patches which provided an additional food supply for upland game species. Insects and aquatic animal life were the main food source of breeding waterfowl and broods. The young of upland game species also depend heavily on insects hatched on the refuge. Generally waterfowl brood habitat is sufficient on the pool areas but there are some shortages in certain areas. The southern portion of the Sprague Pool for all practical purposes is devoid of brood cover. Some areas on the south and east shorelines of Ryneerson 1 are also lacking sufficient emergents for cover.

Aquatic plants on Sprague and Ryneerson 1 Pools provided an abundant food supply for local and migrant waterfowl.

Extensive beds of aquatics included many species of pondweeds, water milfoil, elodea, coontail and bladderwort. Wherever mud flats were exposed spikerush and needlerush were abundant. Rynearson 1 also had numerous beds of wild celery which were relished by divers. Other pools provided limited quantities of submerged aquatics. Moist soil food plants were abundant along pool margins and in wet meadows. Smartweeds, wild millet, bidens and cyperus were the most common. Rynearson Pool 2 was drawn down in June and seeded to Japanese millet and buckwheat. Only fair catches were obtained from the seedings but excellent waterfowl use was obtained shortly after reflooding in October. Wild millet, smartweed and bidens supplemented seedings on the area. Some seed will still be available to migrating waterfowl this spring.

Refuge agricultural crops did extremely well this year and provided large quantities of food. A total of 140 acres of buckwheat, 33 acres of corn and 181 acres of browse crops were available. Heaviest use was by waterfowl, particularly geese. Upland game birds depend on these areas for food during the winter as well as other seasons of the year. Deer utilized sprouting crops soon after they emerged from the ground. Abundant rains and the absence of a killing frost resulted in good yields; only a small acreage of late planted buckwheat was affected by light frost in August. Good crops and an abundance of water on surrounding farmlands provided additional food supplies off the refuge.

Heavy precipitation throughout the year caused a heavy growth of vegetation and resulted in excellent fall and winter cover. Seed production was also excellent and there is a good supply of weed seeds and mast available for resident birds during the critical winter period. Turkey depend heavily on acorns to carry them through the winter. Mallards, blacks and wood ducks made excellent use of acorns during the fall where high water flooded timbered areas.

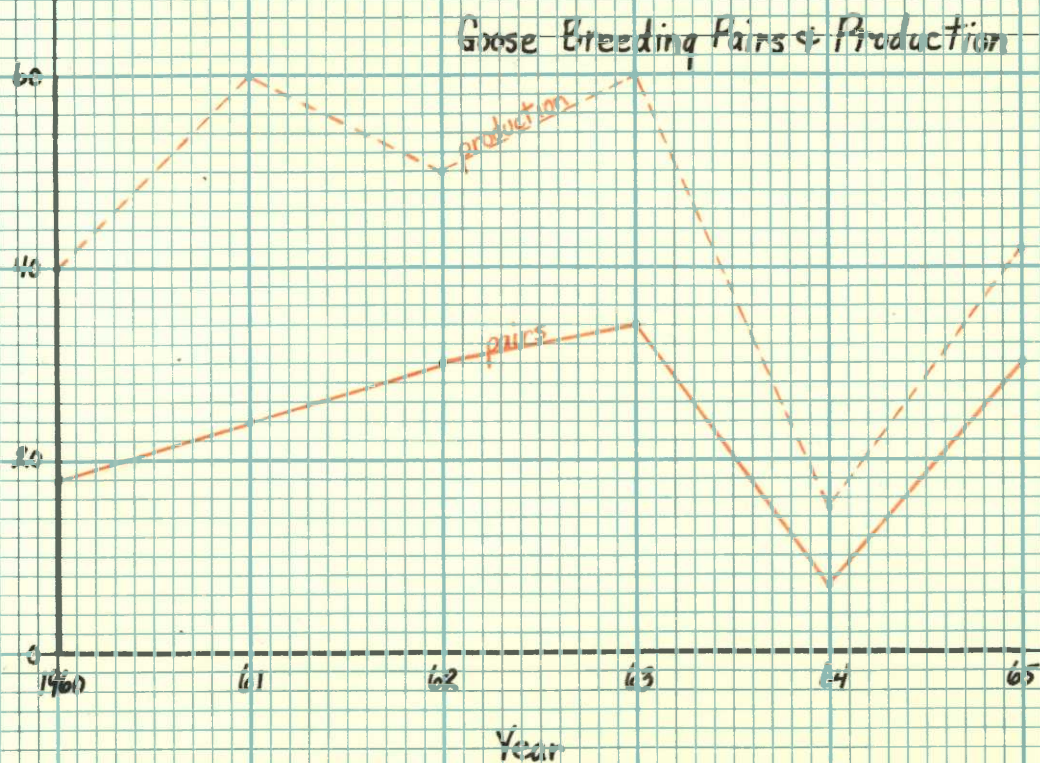
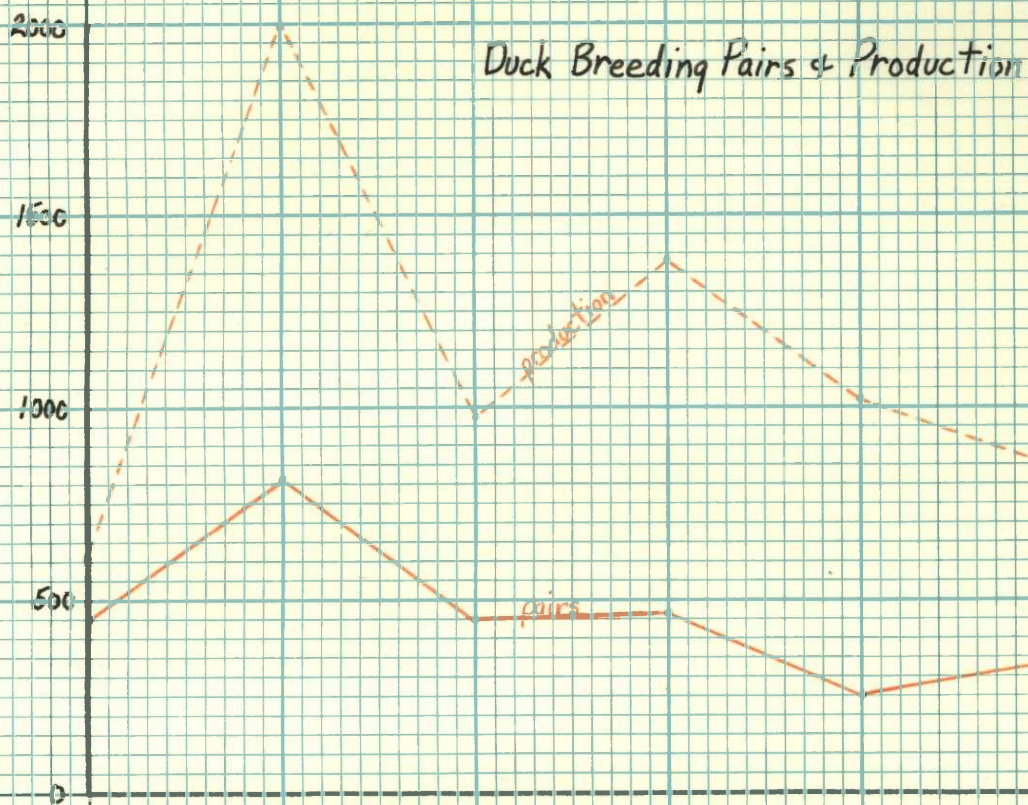
II. WILDLIFE

A. Migratory Birds

1. Waterfowl

a. Whistling Swans

Whistling swans were first observed on April 10 when several made their appearance on Rynearson 1. Many were heard the evening of the 13th as they winged their way into the refuge. The population peaked April 17 at 70, with birds confined chiefly



to the Rynearson Flowages. A few birds were observed on the Goose Pool this spring and we suspect some used the Sprague-Mather Pool although none were actually observed. Thirty swans spent some time on Rynearson 1 the second week of November. This fall we failed to observe the usual migration of swans passing over the refuge although it is possible it occurred unnoticed.

b. Geese

Canada geese were first observed on March 31 when flocks totaling 55 birds stopped off at Rynearson 1. On the same day other small flocks and family groups were seen exploring the Pool 19 area even though 8 inches of snow was still on the ground. Refuge pools are usually frozen over when spring migrants first arrive resulting in considerable shifting of birds to and from the Petenwell Flowage. Geese continued to increase until they hit their peak of 1500 during the third week of April. By the end of April all but 400 birds had moved on north. This was the lowest spring population since 1960 and compares with 3500 last year and 4000 in 1963. Peak spring use was down 52% from the 5 year average. Although sufficient food was available on the refuge considerable off refuge feeding occurred on farms south of the refuge. The Williams field was the only refuge unit that received much goose use. Feeding flights south of Highway 21 were heavy and Walt Wollschlager east of the refuge reported many geese feeding in his corn fields.

Production of geese to flying stage was estimated at 42 young compared with only 15 last year. Average production for the past 5 years is about 50 young. A total of seven broods were observed on Rynearson 1, Sprague Pool and Pool 19. Based on these observations we estimate our total production at 14 broods with an average brood size of three. Nest destruction due to raccoon predation continues to be high and although we attempted some trapping in the vicinity of Pool 19 we had little success in capturing raccoons. If approval is granted by the Wisconsin Conservation Commission we hope to undertake a limited poison program in 1966. Goose nesting platforms placed in Sprague and Rynearson 1 Pools in 1963 have not been used by geese. These platforms were constructed of logs and wire and are extremely vulnerable to ice and water action. We intend to replace these in 1966 with a recently designed fiberglass model which is cheaper and more durable.

Fall migrant geese began trickling into the refuge the first week of September. The population continued to build and reached its peak during the opening week of the goose season which was October 3 - 9. There were 9800 Canadas compared to the 10 year average of 15,136. Geese used all refuge crop fields at one time or another during the fall but fields receiving

particularly heavy use were the Laske, Parham-Becker, and Upper and Middle Canfield. Our alsike clover plantings were hit so hard by geese that most of the plants were killed. All 33 acres of refuge corn were completely used by geese and cranes.

Goose Use Days

	1965	1964	1963	5-yr. Average
Canada	424,054	537,887	634,942	546,177
Blue, Snow & White Fronts	16,457	15,309	70,700	37,293
Total:	440,511	553,196	705,642	583,470

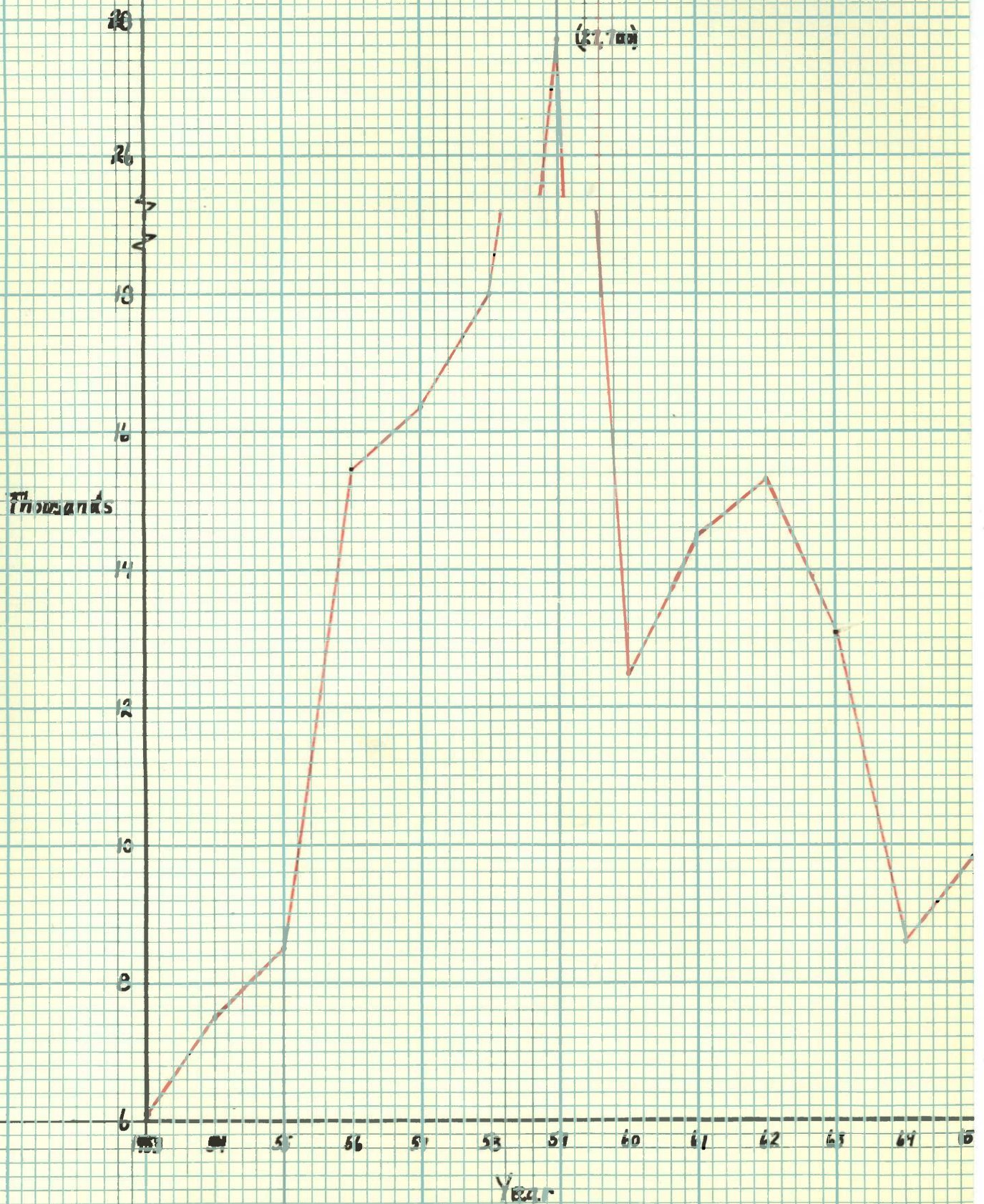
Goose hunting continues to maintain high interest in this area. As a result, land values on farms adjacent to the refuge have increased measurably in the past few years. Some farmers rent their land to hunters while others manage their lands as "Hunting Clubs". The goose kill from the Necedah flock is in excess of 20% of our peak population, which we feel is too high. Crippling loss as a result of the firing line south of the refuge headquarters is excessive but unfortunately we have not found a way to eliminate this waste.

Blue and snow geese rarely number over a few hundred during the spring. Only one was seen this spring. The fall population peaked at 725, down about 400 from last year. It is customary for large movements to pass over the refuge during the fall but none were observed this year.

c. Ducks

Peak spring use by ducks increased 11% over last year, decreased 70% from 1963, and is 32% below the 5 year average. This is mainly a result of lower mallard use, although baldpate, pintails, blue-winged teal, redhead and ring-necked numbers were also down. The migration hit its peak in mid-April which is normal for this area. The spring migration was essentially over by the first week of May except for a few divers that still lingered on the refuge. Flood conditions this spring were the worst in 20 years resulting in wide spread flooding of refuge lands as well as neighboring areas. This condition probably contributed to decreased spring waterfowl use on the refuge since ducks were spread over a wide area. Diving ducks continued to be attracted to the Sprague Pool, parts of Ryneearson 1, and Pool 19. Puddle ducks concentrated mostly in the two Ryneearson Pools with particularly heavy use in the northern shore and pothole area of Ryneearson 1.

Peak Canada Goose Populations



Waterfowl production is difficult to ascertain because of inaccessible shoreline on most of our impoundments, numerous miles of ditches, and thousands of acres of inundated timber. Production figures are based on random brood counts and an aerial breeding pair count which was conducted in May. This was the second year of a correlated air-ground breeding pair count resulting in a ratio of 1:2.07.

Blue-winged teal was our most common nester followed closely by mallard, then to a lesser extent by wood ducks, hooded mergansers, scaup, black duck, and green-winged teal. Total production for the refuge is estimated at 845 which is a considerable drop from our average production of 1,000-1,500 birds per year. Considerable nest losses resulted from flooding this spring and there was very little evidence of renesting.

Peak fall use by ducks was down 15% from last year and down 37% from the 5 year average. Nearly all species were down from previous years but mallards and baldpate, the most common fall migrants showed the greatest decrease. Blue-winged teal began showing up in increased numbers by mid-August although most other ducks did not move into the refuge until the first week of September. By late September the migration was in full swing but did not reach its peak until a month later. Nearly all ducks pulled out prior to a snow storm on November 25. As in the past diving ducks preferred the Ryneerson 1 and Sprague Flowages but this year we were particularly impressed with the diver use on Pool 19. Widgeon and coot also make heavy use of the Sprague Pool and rafts numbering over several thousand were common. This pool is also the main roosting area for wood duck. Ryneerson 2, which is managed for moist soil plants, continues to be favored by mallards, pintails, blacks, teal and Canada geese.

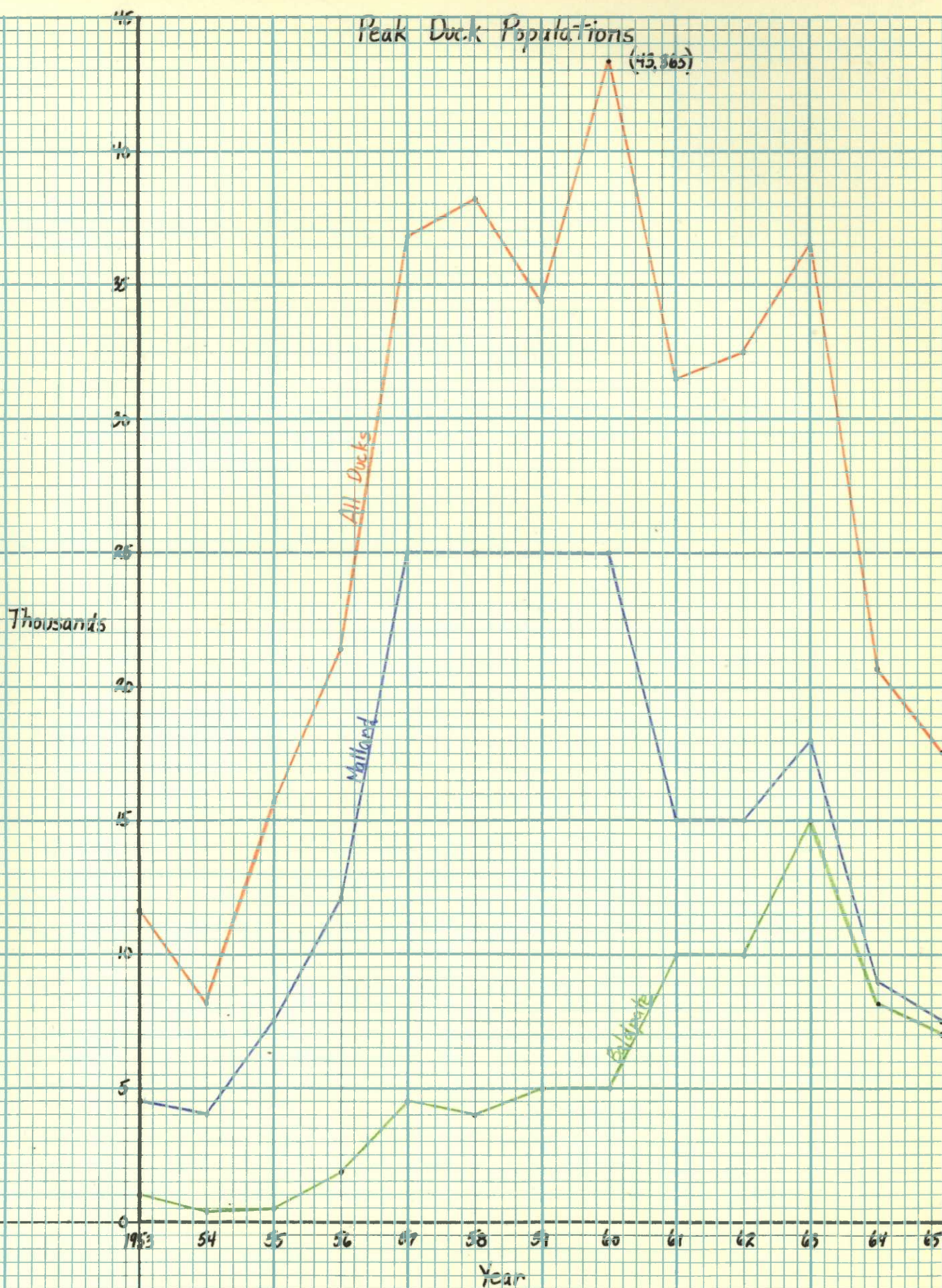
Peak Duck Populations

	<u>1965</u>	<u>1964</u>	<u>1963</u>	<u>5-yr. Average</u>
Spring	4,130	3,710	13,730	6,108
Fall	17,535	20,615	36,490	27,728

Annual Duck and Coot Use Days

	<u>1965</u>	<u>1964</u>	<u>1963</u>	<u>5-yr. Average</u>
Ducks	1,042,307	1,092,562	2,202,340	1,562,836
Coot	72,530	293,090	301,700	219,214

Peak Duck Populations



d. Coots

Peak coot numbers and total use-days show a tremendous drop over preceeding years. The fall peak of 2000 birds compares with 7750 last year and 7150 for the 5 year average. Sprague and Ryneerson 1 Pools received heavy use as birds utilized the dense beds of submerged aquatics. Production was estimated at 30, occurring mostly on the Sprague and Ryneerson 1 Pools.

Peak Coot Populations

	<u>1965</u>	<u>1964</u>	<u>1963</u>	<u>5-yr. Average</u>
Spring	300	1,000	500	400
Fall	2,000	7,750	10,000	7,150

2. Other Water Birds

Sandhill crane use increased this year but peak numbers were below the 300 counted during the fall of 1963. These birds commanded the attention of many interested bird-watching enthusiasts. Anyone who has heard and seen cranes over the marsh can appreciate their aesthetic value. Sandhills were first heard on Ryneerson 1 Pool on March 31. About 30 spent the summer on the refuge and some production was suspected as on June 28 two one-third grown sandhills were seen with an adult on Ryneerson 1 by Wildlife Aid Renaker. During summer and early fall cranes were commonly observed in the drained Ryneerson Pool 2 area. The fall population which peaked at 150 during the week of September 19 -25, made excellent use of browse crops in the middle Canfield and Parham agricultural units.

Great blue herons first arrived on the refuge on March 31 and began building up during the first week of April. On the Sprague Pool fourteen nests were active in the old heron rookery which at one time contained as many as 300 - 400 nests. Twenty-one young were hatched this year. During the summer herons were widely distributed on ditches and pools in search of food. The last straggler was seen in early December.

Double-crested cormorants, which at one time nested with herons in the Sprague Pool rookery were uncommon. Six adult birds were seen this summer but no nesting occurred.

American bitterns, green herons and black-crowned night herons were occasionally observed near many of the pool areas.

Pied-billed grebes were fairly common with numbers increasing noticeably during the fall period. Both pied-billed and horned grebes were first observed on April 20 but the latter were not seen for the remainder of the year.

Common loon were observed first on Ryneerson 1 on April 20. During early spring 3 or 4 remained on the refuge but moved out sometime in May.

Sora and Virginia rails were heard on occasion but were never observed. Neither were present in large numbers.

Shorebirds, Gulls and Terns

Killdeer, yellowlegs, snipe and three species of sandpipers are the most common of the shorebirds found on the refuge. Lesser yellowlegs and pectoral sandpipers were particularly abundant during fall along numerous ditch spoil banks in the Sprague Pool. Killdeer were present in fair numbers throughout the spring, summer and fall periods. Common snipe were most commonly observed during the fall.

Only four species of gulls and terns were observed during the year. Common terns and ring-billed gulls were common through the summer period while black terns and herring gulls were more frequently observed in the spring and early fall.

Doves

Mourning doves are common and are most frequently observed near the refuge agricultural units. The summer population was high and banding operations produced a record 234 doves. Dove numbers increased slightly during the fall migration and a few birds remained as late as the 4th of December.

B. Upland Game Birds

Ruffed grouse populations were low for the second consecutive year. Low winter carry-over and nest losses due to an extremely wet spring resulted in a population which was the lowest in many years. Drumming activity, brood observations and fall hunting substantiated a low grouse population. Brood sizes were average although observations were few.

Sharp-tailed grouse decreased noticeably from last year. Only 5 males were observed on the Blair Unit, whereas 14 were counted in 1964. A late count probably contributed to the lower number of dancing males. Several other scattered observations were made of adults but no broods were sighted.

Controlled burning of the Blair Unit and other grassland areas should prove beneficial to the remnant population which presently numbers between 30 - 50 birds.

The wild turkey population continues to increase. The fall population on the refuge was estimated at 500 birds while the figure for the entire area is between 100 and 2000. Transplants of Pennsylvania stock in the 1950's provided the brood stock for the present population. The WCD continues to provide winter feeders and hopes to carry out a trapping and banding program this winter. Some of the birds trapped will be transplanted to habitat not presently occupied. Production this year was very good, about equal to last year. Brood sizes were very large even late in the summer. It was not uncommon to see half grown broods of 10 - 15 birds. A spring turkey season is a reality now. The Wisconsin Conservation Department is presently working on plans for a spring gobbler season. The expected harvest will be about 60 birds. Approximately 26 sections of land or 40% of the refuge is expected to be open to hunting.

Woodcock increased slightly this year as indicated by singing ground surveys near the refuge. Production on the refuge was thought to be good. One incubating female was photographed on numerous occasions but she failed to desert the nest. Numerous sightings during the fall period indicated a good southward migration through the area. As in the past hunting pressure on these excellent game birds was very light.

The refuge provides marginal habitat for both bob-white quail and ring-necked pheasant. Both species are present in limited numbers and few observations were made during the year. The quail population cannot withstand the harsh winters and have decreased to the point where the State has had a closed season since 1962. However, private lands east of the refuge harbored a fair number of birds this year as cocks were heard singing throughout the spring.

Pheasant are uncommon and observations have been limited to the primary and secondary headquarters areas. At least six sightings were made, all of mature birds. Pheasants reproduce poorly in this area and most of the hunting south of the refuge is from State pen-reared birds.

C. Big Game Animals

White-tailed deer is the only big animal common to the refuge. The deer population was equal to that of last year and was estimated at about 2700 animals before the refuge deer seasons.

Production was good and many does were seen with twins. The three refuge deer seasons resulted in the harvest of 675 deer. The illegal kill was high and probably claimed an additional 150 animals. In the past high refuge deer populations have created numerous management problems and until Wisconsin's buck law was changed in 1963 harvest was insufficient to maintain the population at desired levels. The "variable quota" system which allows the harvest of an additional deer of either sex by a party of four hunters permits a more realistic harvest. The condition of the range can be maintained in its present good condition with a harvest of about 700 animals each year.

Black bear have not been seen on the refuge since September of 1963. It is probable that transient bear use the refuge during a part of the year. This summer a sow and two cubs were sighted twenty miles south of the refuge near Mauston, Wisconsin.

D. Fur Animals, Predators, Rodents and other Mammals

Mink numbers have been low for the past two years resulting in no predation losses during the wood duck banding program. Only one mink was removed by the refuge trapper this fall.

Muskrat numbers are down drastically from last year. No trapping was permitted this year as no more than a dozen houses were present on the entire refuge. We accredit the worst spring flood in 20 years to the loss of many breeding muskrat. Excluding adverse weather, we should expect a normal population next year.

Beaver are also down from previous years. Last year our trapper removed 13 beaver while the three years prior to this our trappers took approximately 240. The only trouble caused by beaver this year was on the Finley road culverts below Pool 27. Except for plugging culverts and flooding roads, a high beaver population is desirable on the refuge since they inundate hundreds of acres of lowlands along refuge drainage ditches. No trapping will be allowed on the refuge during the spring of 1966 to permit the population to rebuild.

Otter are found on most portions of the refuge as evidenced by observations and tracks. This year otter were observed on the Sprague Pool, Williams dike, Pools 9 and 27 and the Spencer-Robinson ditch. In the past they have been seen on Rynearson 1, Rynearson 2, Pool 13 and Pool 19. In the past otter trapping has never been permitted on the refuge although the possibility exists that a limited harvest might be possible at some future date.

Raccoon are abundant on most portions of the refuge. Production was high as many large litters were observed along margins of pool areas, particularly the Sprague Pool. Nest predation by raccoon continues to limit refuge waterfowl production. A control program will be undertaken next spring to afford as much protection as possible to breeding Canada geese in an attempt to establish a larger breeding flock. Trapping adjacent to wood duck trapping sites produced only 13 raccoon while a total of 50 were killed or trapped during the entire year. Unlike previous years, no losses were sustained during duck banding operations on the Sprague Pool. However, raccoon were constantly raiding dove traps along the agricultural units and killed a substantial number of birds.

Striped skunk are fairly common and are smelled more often than seen. Nest predation by skunk is minor but they are a nuisance to the dove banding operations. A total of 13 animals were killed during the year, a large number of them around the headquarters dump.

Badger are present in limited numbers. No observations were made of badger but their diggings are scattered throughout the refuge. Opossum have not been observed on the refuge in four years.

Weasel are common on all portions of the refuge but are seldom seen. There is no local interest in these furbearers because of low fur value.

Red fox are numerous and many observations are made throughout the year. One observation was made of a gray fox on the Bewick Trail near the turkey feeder. Three red fox dens were located in a small area south of the Sprague Pool, two in a jack pine plantation east of the Speedway Road and the other near secondary headquarters. Trapping interest should increase since the demand for pelts has raised prices to \$8.00. There is no bounty on fox.

Coyote are fairly common to all portions of the refuge and are frequently seen or heard. Most of the sightings are near the main pool areas, particularly the Sprague and Ryneerson Pools. After the late bow season coyotes are frequently seen on the Ryneerson Pools in search of gut piles. Coyote predation on young goslings probably occurs but the amount can only be speculated.

Squirrels are very common throughout the area. Four species occur on the refuge; gray, red, fox and flying squirrels. The most abundant are the gray and red squirrels while the fox and flying squirrels occur in low numbers. Several families of flying squirrels inhabit the area around headquarters.

Cottontail rabbits are low although certain areas on the refuge harbor a moderate population. A few are always present around the secondary buildings. Snowshoe hares are rarely seen although some are probably present.

E. Hawks, Eagles, Owls, Crows, Ravens and Magpies

Red-tailed hawks are the most common predatory birds on the refuge with high spring, summer, and fall populations. Considerable nesting occurs on the refuge. Red-tails were responsible for killing a number of trapped doves along the Canfield agricultural unit as were the less abundant Cooper's hawks. One Cooper's hawk was caught in a dove trap during summer banding operations. Goshawks, Cooper's, marsh and sparrow hawks were fairly common throughout the year and observations were frequent on these species. Rough-legged hawks were numerous during the spring migration period in March and scattered sightings were made in late fall. Only occasional observations were made of sharp-shinned hawks.

Bald eagles are commonly observed on the refuge during the spring break-up in search of fish and during the fall in search of crippled waterfowl. The fall population peaked at 25 in October. About 20 bald eagles are wintering below the Petenwell Dam on the Wisconsin River 6 miles east of the refuge. Several sightings were made on golden eagles during the year, most of them in the fall. These majestic avian predators made frequent visits to the goose banding sites this fall, at times making pests of themselves.

Several summer observations were made on osprey, all them occurring on the Sprague and Rynearson Pool areas. It was thought that an osprey pair might be nesting on the Sprague Pool but a check of the area revealed no nest. Two members of the refuge staff assisted a banding cooperator band three osprey nestlings hatched on the Potter's Flowage west of the refuge. Interested individuals and "guardians" of the osprey reported that all eventually flew off with their parents.

Owls are quite numerous on the refuge but observations are infrequent. Great-horned and barred owls are year-round residents and are common while screech, long-eared and saw-whet owls are present in moderate numbers. Though owls were not often seen they were frequently heard at night.

Crows were common throughout the year with large migrating flocks seen during the fall period. A number of these birds are present during the summer and some nest predation is suspected, especially on the Sprague Pool where there is an abundance of dead snags for perching sites.

F. Other Birds

By early April the first migrant meadow larks, robins and red-winged blackbirds were beginning to join winter residents on the refuge. The most common winter birds which could be seen around feeders included bluejays, downy and hairy woodpeckers, black-capped Chickadees, white-breasted nuthatches and tree sparrows. Horned larks, cedar waxwings and slate-colored juncos were also present through the winter in smaller numbers. Purple martins moved into the refuge bird houses during the last week of April. The mysterious Baltimore oriole which appears in large numbers to breed and nest on the refuge only to seemingly disappear after fledging the young was also first observed during late April.

During the fall there was the usual migration of song birds through the refuge. Observations were made on two species listed as uncommon for the refuge. On November 27 a pileated woodpecker was observed along the Grand Dike road one-half mile southeast of refuge headquarters and twice during November observations were made on pine grosbeaks. The first recorded observation of white-winged crossbills was made in November and this bird will be added to the refuge bird list.

G. Fish

Northern pike, perch, sunfish, bullhead, carp, and sucker are present in limited numbers on some of the refuge pools and ditches. Most of the larger fish are present in the Sprague and Ryneerson 1 Pools. Northern pike provide most of the recreation to fishermen who try their luck annually on the Sprague Pool. Bullheads and a few perch also provide limited catches. Last year Ryneerson Pool 1 was in winter drawdown and the Sprague Pool experienced some winter kill because of abnormally low water levels.

Fishing success on the Sprague Pool indicates that the fish populations are down on that pool but a few large northernns were still caught. The largest one reported was a 34-inch northern taken during the summer. Most of the northernns caught this year were in the 12 - 15 inch class. The Sprague Pool is scheduled for drawdown this winter and levels were being lowered by mid-December. After drawdown it takes about two years to produce fish of catchable size.

H. Reptiles

Reptiles and amphibians go relatively unnoticed throughout the year but daily activities resulted in the observations of the following:

Snapping turtle	Northern leopard frog
Western painted turtle	American toad
Blanding's turtle	
Five-lined skink	
Eastern garter snake	
Eastern hognose snake	

Snapping, painted and Blanding's turtles were commonly observed on refuge dikes and roads laying eggs in June. Fifty-two snapping turtle eggs were removed from one nest this summer. Seven snappers were removed during the course of summer activities. Hognose and garter snakes are abundant during the summer while leopard frogs were particularly noticeable after heavy summer rain storms.

I. Disease

There were no cases of wildlife epizootics during the year but we did have an incident involving the refuge turkey population. Hunters during the late bow season spotted several listless birds which were thought to have blackhead, a deadly poultry disease. One bird was captured and held at refuge headquarters. The bird died the following day and the carcass was sent to the University of Wisconsin for examination. The cause of death could not be established although it was definitely established that this bird did not die by blackhead.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

1. Water Management

Constructed Pool 18 spillway and placed approximately 30 yards of rip-rap.

Installed water gauges on Pools 18, 19, 27 and Rynearson No. 1 & 2.

Removed washed-out APW control on Pool 9. Installed diaphragms on new tube and replaced structure. Placed 40 yards of rip-rap on inlet side and 20 yards on downstream side of structure

Repaired secondary dike on Pool 18.

Repaired gear box on 5x5 lift gate on Sprague-Mather Pool

2. Road and Trail Maintenance

Spread hay mulch on $2\frac{1}{2}$ miles of APW dike

Haul sand fill in low spots and gravel portion of Laske trail.

Haul 340 yards of gravel and 200 yards of sand for entrance road.

Doze and blade ditch bank trail to Pool 19 structure.

Remove wooden bridge on Canfield road, install two 30-foot
44x72" culverts in the West Branch Little Yellow Ditch
and rip-rapped.

Widen approach to new APW dike and graveled.

Build up Canfield road west of Little Yellow River Ditch.

Install 30-foot 36x58" culvert in Bewick Lateral Ditch on
Canfield road.

Build up one mile of trail along east side of Middle Canfield
agricultural unit, north of Canfield road.

Blade and gravel trail to Pool 18.

3. Fencing and Posting

Rout, stain and erect two new refuge entrance recognition signs.
Replace posts and stretch wire on one mile of east boundary
north of Tometeczek road.

Posted open and closed areas for early archery season, gun
season and late archery season.

Construct 9 new public information signs for refuge deer
hunting seasons.

Had two fishermen information signs routed and stained by
Wisconsin Conservation Department sign shop at Meadow Valley.

Replace 40 miles of boundary and interior signs.

4. Buildings

Quarters 1: Painted living room and one bedroom, refinished
woodwork in living room.

Quarters 8: Garage was wired.

Quarters 11: Installation of oil furnace, electrical wiring
for yard light was changed, low hanging wires elevated,
poured concrete approach to garage and rewired garage.

Office: Completed 14x26' office addition, finished inside with
wood paneling, installed heating and wiring. Shingled entire
office-service building, installed wood paneling and new sink
in lavatory and painted back office. Established new grass
lawn at headquarters and plant 41 trees. The refuge sewer
system required its first maintenance since it was installed

27 years ago. The septic had filled with solids and was pumped out in January. The headquarters water system required replacement of the electric motor and some sections of pipe.

Shop: Install oil furnace and insulate wall and ceiling.

5. Equipment

Periodic property screening at nearby Camp McCoy for refuge materials and equipment and items for Job Corps Centers. Constructed 10 dragline mats. Install rebuilt Jeep engine. Made modifications on pump unit of fire-fighting truck. Replaced hydraulic pump on Oliver tractor. Many maintenance jobs too numerous to mention occurred on automotive equipment, farm tractors, dozers, and grader.

6. Agricultural Units

Two acres of stumps were cleared on the Laske field

A total of 120 tons of agricultural lime was spread by Sam Vanderhoff of Mauston on 26 acres in May; 80 tons on the 20 acre Carpenter field, 20 ton on the 2 acre strip in the Laske field, and 20 ton on 4 acres of high sand knolls on the south end of the Upper Canfield and Williams fields.

7. Miscellaneous Items

Install new 1,000 gallon gasoline tank at headquarters. Hook up old 500 gallon gasoline tank for office fuel oil supply. Constructed banding site along Williams dike on Rynearson 1 side. Relocated flag pole. Remodel, paint and relocate information board.

B. Plantings

1. Aquatic and Marsh Plants

None this year.

2. Trees and Shrubs

The addition to the refuge office necessitated landscaping the headquarters yard. Black dirt was hauled in for fill and the lawn was limed and seeded to grass. Forty small spruce

trees were transplanted along the Grand Dike road and two 4 foot spruce and a 4 foot white pine were transplanted in the yard. The landscaping has done much to enhance the appearance of the headquarters area.

3. Upland Herbaceous Plants

None this year.

4. Cultivated Crops

All farming operations were carried out by refuge personnel. The total acreage farmed this year was 354 acres with an additional 180 acres left in native grasses. These areas will be maintained in grass until such time when additional acreage is needed for cultivated crops.

The trend in Necedah's farming program is toward the establishment of more permanent grasses and legumes which will provide browse and nesting cover. It is felt that for the present the grain and rye browse crops required to feed the number of waterfowl that utilize the refuge can be grown on the centralized Canfield Units. Three units were converted to grass and legume plantings this past year. The Carpenter and Laske Units, totaling 52 acres, were seeded to Alfalfa and the Hanson Unit (16 acres) was seeded with a mixture of brome, timothy, creeping foxtail and sweet clover. An oats nurse crop and fertilizer were used in the alfalfa seedings. All three plantings resulted in excellent catches.

A total of 18 acres was seeded to clover. Dense growths of smartweed and excess moisture resulted in only a fair catch of alsike clover along ditches in the Upper Canfield and Parham-Becker Units but both received excellent waterfowl use. A poor catch resulted from a small 4 acre planting on the Williams Unit that was seeded in mid-July.

A total of 173 acres was planted to grain crops, 140 acres in buckwheat and 33 in corn. The first frost on August 29 resulted in the loss of some buckwheat but was not severe enough to damage corn.

Because of the wet spring and the delay in planting, much of the buckwheat was not planted in strips as was planned and heavy waterfowl use was restricted to the areas around depressions which held runoff from late summer rains. Heavy fall rains prevented us from harvesting any buckwheat for seed. Yield was approximately 30 bushel per acre.

Corn was planted with 150 pounds/acre of 5-20-20 and was side dressed with nitrogen when about one foot high. The yield on corn was about 35 bushel per acre.

Approximately 95 acres was in rye browse this year. This crop received excellent use by geese and cranes.

Buckwheat was planted on 5 acres and Japanese millet on 63 acres of Rynearson Pool 2 while in drawdown. The catch was good on buckwheat and only fair for millet but both plantings received excellent waterfowl use.

A breakdown of cropland acreages by unit is shown below:

<u>Unit</u>	<u>Buckwheat</u>	<u>Corn</u>	<u>Rye</u>	<u>Alfalfa</u>	<u>Clover</u>	<u>Grass</u>
Upper Canfield	54f	11e			5e	
Middle Canfield	35f	11e	44e			
Lower Canfield	25f		2p			
Yates			2p			
Hanson						16f
Williams	16g				4n	
Parham-Becker	5g	11e	49e		9e	
Laske				32e		
Carpenter				20g		
Rynearson Pool 2	5e					
	140	33	95	52	18	16

Letters following acreages indicate degree of use by waterfowl

e-excellent g-good f-fair p-poor n-none

C. Collections and Receipts

None this year

D. Control of Vegetation

Chemical control of undesirable vegetation was undertaken on 85 acres of refuge lands. 2-4-5-T was applied on fire lanes, dikes and grassland areas to control such species as willow, aspen, blackberry, and northern pin oak. Atrazine and 2-4-D were used on refuge corn fields to control smartweed and quackgrass with varying results. Atrazine gave us complete control of all weeds in corn fields while 2-4-D was ineffective, possibly because it was old and had been frozen on numerous occasions. Refer to NR-12's for the details of sprayings and results.

E. Planned Burning

The 1965 burning program was aimed primarily at improving waterfowl habitat, enhancing upland game habitat, and improving the timber resource.

Existing grassland openings, islands and marsh margins must be continually burned to retard invasion of undesirable woody and marsh vegetation. By burning pool margins and upland areas it is possible to maintain and even enlarge open grassland types that are needed for nesting waterfowl and the remnant sharp-tailed grouse population.

The burns scheduled in timbered areas were designed to eliminate slash and speed up jack pine regeneration. From these experimental burns more will be learned about the use of fire as a forest management tool on the Necedah refuge.

Eleven areas with a total acreage of 2,040 acres were approved under the 1965 controlled burning plan. A late wet spring prevented burning all the areas, but 780 acres were burned. The areas burned are shown on a map that follows. Costs and burning conditions for each burn are shown at the end of this section.

Area 1 containing 200 acres was burned April 7. This area at one time was one of the better sharp-tailed grouse areas on the refuge, but the sharp-tails have declined along with their habitat. By slowing down the encroachment of jack pine, willow and aspen, desirable grassland areas can be maintained along marsh fringes and benefit both upland game and waterfowl. The burn area was free of snow while the forested area adjacent had a light snow cover.

Area 3 was divided into three separate units and burned on May 10, May 13, and May 14. A total of 90 acres was burned. This unit had been scheduled for the past three years but unfavorable conditions prevented it from being burned. The accumulation of fuel on the ground produced a hot burn over most of the area. Burning at this late date produced a good kill on everything up to four inches in diameter as the leaves were just starting to bud. Burning eliminated accumulations of woolgrass on lower sites and aspen and willow on the higher sites.

Area 4 was divided into two burns. The northwest portion of the Goose Pool containing 80 acres was burned on April 28 and a fair kill on small jack pine and aspen resulted. This unit has high potential for waterfowl nesting as well as providing excellent sharp-tailed grouse habitat. Goose nesting occurs on the area and management is needed to control undesirable vegetation which limits production potential. Sixty acres were burned between the Goose Pool and Sprague-Mather road on May 4. This area was becoming overgrown with willow and woolgrass. It was burned following a light morning rain but a fair burn was obtained with a good kill on willow. All snow cover was gone.

Area 6 was burned April 27. This 330 acre area harbors the largest number of sharp-tailed grouse on the refuge. The habitat was rapidly losing its attractiveness due to the invasion of woody vegetation. All snow cover was gone and a good burn was obtained on the higher sites. The lower sites contained standing water and did not burn. Area 6 must be burned regularly if it is to be maintained for grouse.

Experimental Area 1 containing 20 acres was burned on May 11. This had been a 30-year old jack pine plantation which was destroyed by a tornado. The timber was salvaged for pulpwood which left a heavy cover of slash. The burn was designed to remove the slash and possibly allow natural reseeding of the area. This was the hottest burn obtained this year and the intense heat created by the fire probably consumed most of the seed; the spring of 1966 will give us a better picture as to how much seed was actually lost.

Summary The 1965 acreage burned more than doubled the acreage for 1964, but is still not enough if the upland areas and pool margins are to be kept free from encroachment by undesirable plants. A continual determined effort must be made to combat these undesirable pest plants. Each year more permanent fire breaks will be constructed which will cut down on the manpower and expense necessary to control burn. At least 2,000 acres should be burned each year to maintain the present grassland and pool margin habitat.

F. Fires

Only one refuge fire occurred this year, that being the morning of October 31. High precipitation during spring and fall kept the fire hazard extremely low throughout the year. The fire occurred in a marsh-aspen type south of the Finley road near the old cemetery. The fire was confined to a 1.8 acre area and the damage was negligible.

1965 Fire Weather and Costs for Controlled Burns

Date	Area Burned	Acreage Burned	Spread Index	Buildup Index	Relative Humidity	Wind	Labor Costs	Equipment Costs	Total Costs
4-7-65	1	200	28	5	40%	W-20	\$ 31.00	\$ 2.00	\$ 33.00
4-27-65	6	330	26	7	45%	NW-15	95.00	10.00	105.00
4-28-65	4	80	22	10	21%	NW-9	24.00	2.00	26.00
5-4-65	4	60	18	22	55%	NE-6	25.00	2.00	27.00
5-10-65	3	70	18	26	60%	W-11	27.00	5.00	32.00
5-11-65	Exp. 1	20	14	28	46%	W-8	35.00	6.00	41.00
5-13-65	3	10	18	36	25%	SE-8	21.00	4.00	25.00
5-14-65	3	10	22	39	36%	S-11	<u>20.00</u>	<u>4.00</u>	<u>24.00</u>
							\$278.00	\$35.00	\$313.00

Average cost/acre \$0.40

Average cost, burns over 50 acres \$0.30/acre

Average cost, burns under 50 acres \$2.25/acre

Equipment costs are just operating expenses and do not include depreciation.

IV RESOURCE MANAGEMENT

A. Grazing

One permit, 65-14 was issued to Arthur Seigler for grazing cattle on the 100 acre Unit 6. Thirteen head were grazed at a charge of \$.20/AUM. Total revenue from the permit amounted to \$6.59. The forage on this unit is of poor quality but cattle are able to subsist on it. Yearly grazing of old farmlands once used by early settlers helps maintain these areas in grass. Similar areas without grazing or vegetative control are beginning to revert to willow and dense woolgrass. The permit was effective from May 15 through November 15.

B. Haying

Norman Parker was issued the only haying permit during the year. The permit, 66-4, was effective for the period September 8-15 for removing an oats nurse crop from an alfalfa planting on the Carpenter Unit. Approximately 13 tons of hay were removed at a charge of \$1.00 per ton.

C. Fur Harvest

One beaver trapping permit was issued this year to Leonard Rudolph for the period February 6 through March 7. The 13 beaver trapped averaged \$10.42. Several nuisance beaver were removed by the WCD in areas where the animals were flooding public roads.

John Bagnowski and helper were permitted to trap mink on all portions of the refuge. No muskrat trapping was allowed on the refuge due to the low population. The mink season ran from November 6 through December 19 but John managed to trap only 1 mink. The mink sold for \$12.00 with the refuge getting one-half share. The trapper retained all rough furs which this year amounted to 16 raccoon. Other animals removed by refuge personnel during the year are 34 raccoon, 13 skunk, and 2 fox.

D. Timber Removals

Twelve pulpwood permits were in force during 1965 and 3,999.50 cords were removed. Total revenue amounted to \$22,191.27.

Most of the timber harvested for pulpwood was jack pine. The table below shows the cordage by species and the average price received:

<u>Species</u>	<u>Cords</u>	<u>Average price/cord</u>
Jack pine	3,303.62	\$6.53
Oak	522.21	.50
Aspen	173.67	2.00

As of December 31, five of the permits were still in effect. A complete summary of all wood removals is included on NR-11 forms.

E. Commercial Fishing

None

F. Other Uses

One permit, 66-1 was issued to Joe Haske to maintain an apiary for the period July 10 to September 30. Thirty hives at a charge of 10¢ per hive were located along the Canfield farm units to improve buckwheat pollination.

V. FIELD INVESTIGATIONS OR APPLIED RESEARCH

A. Banding - General

Banding operations resulted in the banding of 1,331 birds. Below is the breakdown by species:

Canada Geese	623
Wood Duck	135
Mallard	115
Blue-winged Teal	11
Black Duck	8
Green-winged Teal	<u>1</u>
Sub-total:	893

Mourning Dove	234
Brown-headed Cowbird	191
Yellow-shafted Flicker	1
Blue Jay	3
Rufous-sided Towhee	1
Brown Thrasher	1
Vesper Sparrow	5
Bay-breasted Warbler	1
Cooper's Hawk	1

Sub-total: 438

Total: 1,331

B. Wood Duck Banding

The total of 135 banded was the lowest since 1959 when a wood duck banding program was initiated at the refuge. Difficulty in locating large concentrations of birds and high water hampered trapping operations. All trapping was conducted on the Sprague-Mather Pool with 1x2" weld-wire traps baited with shelled corn. Spoil banks of the Rattail Lateral produced the best results again this year. Other ducks trapped and banded during wood duck operations included 111 mallards, 11 blue-winged teal, 8 black duck and 1 green winged teal. Two trap sites east of the lateral were consistently producing mallards until they were moved to more favorable wood duck areas. Total wood ducks banded at Necedah to date is 2,904.

In an attempt to trap more local wood ducks two float traps, which measured about 2 feet in diameter, were constructed. The traps caught no young but on one occasion one trap contained 5 adults which proceeded to cause the trap to go awash first from one side and then the other until all but one of the birds escaped.

There were no cases of raccoon or mink predation this year. Raccoon sets near the trap sites resulted in the removal of only 13 animals. Chicken wire stretched across peninsulas or spoil banks with steel traps set at either side proved very effective.

The table on the following page shows the banding accomplishments for wood ducks for the past 5 years.

	Adult		Immature		Local		Unknown	Totals
	M	F	M	F	M	F		
1961	229	43	74	63	11	8	1	429
1962	279	114	67	38	4	12	0	514
1963	635	185	34	30	3	2	0	889
1964	236	49	35	22	1	3	0	346
1965	78	27	10	15	3	2	0	135

C. Canada Goose Banding

A total of 623 geese were banded at this fall with only 51 banded from a pre-season quota of 500. Five Hutchins's geese are included in the total. Returns and recoveries accounted for another 43 birds. The cumulative total of Canada geese banded at Necedah is 3,115. The number of recoveries as of August 1 was 373.

A new cannon net trapping site was built on the Williams dike but the old site on the east dike of Pool 1 produced consistently better results. Three shots resulted in over 100 geese each. Disturbance created by vehicles passing the Williams dike site was responsible for smaller catches. Three new Miller cannons were tried this year with satisfying results. Rynearson 1 water levels were lowered during the fall to provide numerous mud flats in the vicinity of the banding site and make the area more attractive to waterfowl. Since this technique seemed effective we will carry out the same practice next year.

The following table gives the age and sex ratios of Canada geese banded during the past 5 years:

	AM	AF	IM	IF	Unknown	Total	Ratio Adult to Immature
1961	140	136	126	134	2	538	1/ .94
1962	57	48	80	62	0	247	1/1.35
1963	172	145	137	123	0	577	1/ .82
1964	169	155	192	193	1	710	1/1.19
1965	184	138	133	167	1	623	1/ .93

D. Mourning Dove Banding

A record 234 doves were banded this year as compared to the previous high of 57 banded last year. Twenty-two 1x2" weld-wire traps were baited with varying combinations of millet, corn, wheat and buckwheat. Millet proved to be the best bait and the best trapping period occurred before or after rains. Refuge agricultural units were the areas of highest dove activity and produced the best trapping results.

Predation was a serious problem and brown-headed cowbirds hampered early banding efforts. Raccoon were the worst predators while skunk, Cooper's hawks and red-tailed hawks were all seen at trap sites.

The table below shows the data for this years dove banding effort:

AM	AF	IM	IF	Unknown	Total
145	50	3	0	36	234

VI. PUBLIC RELATIONS

A. Recreational Uses

A wide variety of recreational activities attract large numbers of visitors to the refuge each year. Recreation of some type or another is available throughout the year but the summer and fall periods offer the greatest opportunities.

Bird-watching, photography, and sightseeing are encouraged as much as possible. During summer and fall many families drive the numerous public roads that cross through the refuge to view wildlife. To encourage photography and birdwatching a blind was established on the Rynearson 2 dike where large numbers of geese and ducks are generally present. The response to the blind was excellent and consideration has been given to the establishment of more blinds in the future. If the Bureau should gain control of the 1700 acres south of the refuge in the proposed land exchange with the WCD, the establishment of blinds and viewing points would provide excellent opportunities for the public to observe waterfowl.

Numerous tour groups took advantage of our offer to observe wildlife and learn more of refuge operations since they were able to get off the main roads of travel. This activity was encouraged and many groups responded.

Blueberry pickers had another disappointing year as late May frosts killed most of the berries on the refuge. The last good berry year was in 1962 which incidently was the best that oldtimers ever remember.

Summer and winter fishing is allowed on the Sprague Pool but fishing was about as poor as it has been in a number of years. Last winter ice fishermen caught quite a few

northerns in the 2 - 3 pound class but nothing like previous years. This winter Sprague Pool is in drawdown but still open to fishing however, we expect fishing pressure to be very light. Summer fishing was a complete "bust" except for a few small ones being caught and the report of one 34 incher being taken in the Goose Pool.

Picnic areas are available along the south edge of the Sprague Pool and most of the use is by families who come out for a combined fishing and picnic outing. These areas gave many families the opportunity to get out together and enjoy the outdoors.

Interest in the Necedah Bow Shoot continues to increase each year. An estimated 2,500 attended this year. The weekend event held in close proximity to the refuge headquarters is a prelude to the refuge archery deer season. Participants, many as family groups, have the opportunity to camp, enjoy the festivities and sharpen their eye before taking to the field for the early bow season.

Hunter interest in the three refuge deer seasons was near equal to that of past years. However, there was a slight decrease in the number of hunters during the early bow and gun seasons. The 6,000 hunters that took the field for the late bow season equalled the refuge high. A total of 675 deer were killed on the refuge although the illegal kill was thought to have been higher than last year.

Although no waterfowl hunting is allowed on the refuge the Necedah goose flock provides unlimited opportunities for hunting on lands surrounding the refuge. Goose hunting on farmlands south of the refuge was the best its ever been because of the wet fields and the early established feeding flights off the refuge. When hunting was slow many hunters came to the headquarters area to observe geese on Rynearson Pools 1 and 2. Duck hunting was also very good in this area as thousands of ducks established feeding flights off the refuge. Hunting was particularly good on the Lemonwier River southwest of the refuge as fall floods inundated thousands of acres of pin oak along the river. Hunting on the Yellow River just east of the refuge was good but not as good as last year.

B. Refuge Visitors

<u>Date:</u>	<u>Name and Organization</u>	<u>Purpose</u>
1/6	Larry R. Motley, Army Intelligence Chicago, Ill.	Inquiry on former Wild. Aid Thomas
1/21	M. L. Stinnett, USGMA, Madison, Wis.	Enforcement cases
1/20	L. Reynoldson, USGMA, Eau Claire, Wis	Courtesy call

<u>Date:</u>	<u>Name and Organization</u>	<u>Purpose</u>
1/22	R. M. Howland, LaCrosse Fish Con. Lab.	Obtain fingerlings
	Howard Jackson, "	"
2/4	Paul Woggon, Cutler Town Chairman	Discuss town roads
2/15	Robert E. Haskell, US Dept. Labor Chicago, Ill.	Mastne BEC Claim
3/3	WCD Wardens Clark, Radke, Adamski, Little, Kubisiak, Schroeder and Barton	Review refuge slide file
3/9	Ralph Uttech, FHA, Mauston, Wis.	Poverty programs
4/19	Orie L. Loucks, U. of Wis. Botany	Scientific areas
	Edward Schneberger, WCD, Madison, Wis	" "
4/21	M.L. Stinnett, USGMA, Madison, Wis.	Woodcock survey
4/22	Don Follen, Ed Henricksen, Wis Rapids	Banding cooperators
4/30	James McArdle, FBI Agent, LaCrosse	Courtesy call
5/5	Elliot J. Peterson WCD Warden, Mondovi	Courtesy call
5/12	Dr. Wm E. Green, Biologist BSFW-Winona John Winship, Pilot-Biologist Mpls.	Breeding pair counts
5/15	L. Reynoldson, USGMA, Eau Claire	Dove banding
5/25-26	Wm. Aultfather, Reg. Forester, Mpls.	Timber mgmt.
6/1-2	F. R. Martin, Ass't Refuge Supv. Mpls	Inspection
6/23	H.O. Duncan, USGMA, Oshkosh, Wis.	Courtesy call
6/26	Andrew J. Meyer, Adm. Officer, Mpls Samuel Benjamin, Ass't Director, C.O. John Dupree, Br. Adm. C. O.	Inspection & Tour " "
6/28-30	Wm. Aultfather, Reg. Forester, Mpls.	Timber mgmt.
6/30	M. L. Stinnett, USGMA, Madison	Law enforcement
7/9 & 21	Dr. Wm. E. Green, Biol. BSFW, Winona	Management
8/30	C. P. Knopps, USCSC, Milwaukee, Wis.	Visit
9/23	Vern Stricker, SCS, Madison, Wis.	Visit
9/27	Milt Reeves, Supv. M&E, Mpls. Norman J. Ordal, Minn. Cons. Dept.	Waterfowl mgmt. "
10/1	Dr. Wm. E. Green, Biol. BSFW, Winona Robert Ballou, Div. Wildlife, C.O.	Inspection "
10/9	W. Kennedy, USGMA, Quincy, Ill.	Enforcement
10/21-22	M.L. Stinnett, USGMA, Madison, Wis. L.J. Reynoldson, " Eau Claire, Wis	Enforcement "
10/26	Dr. Daniel O. Trainer, U. of Wis. Robert Cook, U. Wis. Veterinary Science	C. Goose blood " samples
11/3	Frank King, Ass't Superintendent, Game Mgmt. Div. Madison, Wis.	Turkey mgmt.

<u>Date:</u>	<u>Name and Organization</u>	<u>Purpose</u>
11/15-16	Clair T. Rollings, Staff Spec. Mpls.	Soil & Moisture
11/16	B. Petersen, Br. Realty, Mpls.	Quarters Re-appraisal
11/19-20-	M. L. Stinnett, USGMA, Madison	Enforcement
27-28	L. Reynoldson, " Eau Claire	"
12/4	Tom Guyant, Milwaukee Journal	News stories
	Mel Kischner, " "	"
12/11	Dr. Wm E. Green, Biol. BSFW, Winona	Nesting platforms
	H. Dill, Staff Spec., Mpls.	"
12/28-29	Wm. Aultfather, Reg. Forester, Mpls.	Timber mgmt.
9/24	Robert Britt, Forester, C.O.	Timber mgmt.
	Wm. Aultfather, Reg. Forester, Mpls.	"
Frequent Visitors	Local WCD Wardens Clark, Kubisiak and Little Clarence Smith, Game Mgr. WCD, Babcock, Wis.	

C. Refuge Participation

Jan. 27 Collins, Gritman and Lipke to Mauston Courthouse to attend County Extension Service meeting on soils and liming.

Feb. 3 Lipke attended County Extension Service meeting at Mauston on fertilizer and economics of fertilizing.

Feb. 7 Carter attended a short course in fire safety at New Lisbon, Wis. as part of the Wis. Fire Service Training Program sponsored by the State of Wisconsin, State Board of Vocational and Adult Education.

Feb. 15 Collins attended Supervisory Training Session (IACP)
to 26 at Denver, Colorado

Feb. 23 Rudolph attended law enforcement training workshop
to 26 at Crab Orchard Refuge, Illinois.

Mar. 2 Collins attended goose management conference in Madison, Wis. with Bureau and WCD personnel.

Mar. 11 Gritman attended meeting at Bemidji, Minn. on National Fire Danger Rating System conducted by U.S. Forest Service

Mar. 16 Collins and Gritman spoke to 40 Tomah High School students on career opportunities in wildlife and forestry for National Wildlife Week.

Mar. 19 Lipke and Gritman presented slide talks to 70 Mather and Wyeville school students for National Wildlife Week.

- Mar. 28 Lipke and Gritman attended First Basic Refuge Manager
to Training Course at Arden Hills, Minnesota.
April 30
- April 5 Collins, Rudolph and Carter attended annual Conservation
Congress County meeting in Mauston, Wis.
- April 14 Rudolph attended Technical Action Panel in Mauston on
"Coordination of Poverty Actions".
- April 8 Collins talked to 30 members of Wyeville Sportsmen's
Club on refuge activities.
- April 10 Collins talk and tour to 60 Arden Hills Refuge
Manager candidates.
- April 17 Collins tour and talk to 10 students from Tomah High
School ornithology class.
- April 19 Collins conducted tour for Orie Loucks and Edward
Schneberger, members of Wis. Board for Preservation
of Scientific Areas.
- April 19 Rudolph talk and tour to 3 Model School students,
Wisconsin Rapids, Wis.
- April 23 Rudolph talk and tour to 50 Wyeville Public School
students.
- April 29 Rudolph refuge tour with Mr. Frank Farnum, Production
Manager of Triple P, Inc., Necedah, Wis.
- May 12 Collins met with Necedah Town Board regarding repair
of refuge entrance road.
- June 8 Collins, Lipke and Gritman to Horicon refuge for
demonstration on underwater weed control.
- June 27 Collins attended annual director's meeting of the
Wis. Bowhunter's Association at refuge headquarters.
- June 28 Lipke and Renaker tour and talk to 40 Wisconsin 4-H
Conservation Award Winners.
- July 28 Lipke and Renaker tour and talk to 19 from Camp
Fred Loock, Eagle, Wisconsin.
- Aug. 12 Enforcement meeting at refuge headquarters regarding
refuge deer season with refuge personnel, GMA Stinnett
and local WCD wardens.
- Aug. 15 Collins to Washington, D. C. to attend Job Corps Training
to 21 and orientation regarding possible establishment of a
camp on the refuge.

- Sept. 6 Collins toured refuge with Robert Farnum, co-owner of Triple P, Inc., Necedah, Wis.
- Sept. 11 Collins toured refuge with 50 Wisconsin Bowhunter's Association members.
- Sept. 24 Collins, Lipke and Rudolph to Horicon Refuge to attend enforcement meeting for goose season.
- Sept. 28 Collins spoke to 12 women of Tomah Beta Sigma Phi Women's group on refuge activities.
- Sept. 30 Gritman, Rudolph and Carter conducted tour for 180 kindergarten students from Tomah Public Schools.
- Oct. 7 Lipke talk and showed slides to 30 members of Cataract Sportsmen Club on duck identification.
- Oct. 15 Gritman tour to 55 4th, 5th and 6th grade students from Oakdale Schools.
- Oct. 17 Renaker tour and talk to 10 members of Brookwood FFA Chapter, Norwalk-Ontario Schools.
- Oct. 20 Lipke and Gritman talk and show slides to 54 Necedah High School students on refuge activities and conservation career opportunities.
- Oct. 21 Collins and Lipke attended meeting at LaCrosse Fish Control Laboratory on Equal Employment Opportunity.
- Oct. 23 Collins tour and talk to 15 members of LaCrosse Audubon Society.
- Oct. 25 Gritman attended Society of American Foresters meeting
to 28 in Detroit, Michigan.
- Nov. 1 Lipke on special detail to Horicon Refuge on depredations
to 10 work.
- Nov. 10 Gritman talk to 50 members of Wyeville PTA.
- Nov. 19 Enforcement meeting prior to deer gun season with refuge personnel, GMA's Stinnett and Reynoldson and WCD Warden Kubisiak.
- Nov. 22 Collins to meeting at Upper Mississippi refuge regarding goose nesting platform project with Messrs. Dill, Green and Gray.
- Dec. 11 Meeting at refuge headquarters on goose management project with Messrs. Dill, Green, Collins, Lipke and Gritman.

Dec. 17 Collins and Gritman presented check for \$6,903.80 to County Clerk, Mauston, Wisconsin from refuge receipts.

Dec. 17 Collins met with Soil Conservation Service, Mauston, Wis. regarding farm planning.

In addition to scheduled public relations activities several members of the staff have been active in community functions. Robert Arrowsmith is a member of the Rockview School Board and has been chairman of the Necedah High School Board for a number of years. Bob just recently dropped active participation of 4-H while his wife Martha has been active for the past 17 years. His active membership in these organizations is a credit to the Bureau and the refuge.

Harold Carter has been active in the Necedah Volunteer Fire Department for the past 10 years. In addition to his service and good public relations, Harold also brings many new safety ideas to the refuge.

Vern Rudolph is a member of the Legion in Necedah and has been active in the organization for the past six years. Vern was first vice-commander of the Necedah Post in 1965.

D. Hunting

The refuge annually provides excellent deer hunting opportunities to sportsmen from many states. Two bow and arrow seasons and one rifle season attract thousands of hunters to the refuge to try their luck. Hunters came from as far off as New Jersey this year and large numbers came from the states of Illinois, Michigan and Minnesota.

In terms of hunter participation and hunter success, the three refuge deer seasons were a huge success. Wet conditions hampered hunter activity during each of the seasons and hip boots were the order of the day. Deer kill for the three seasons totaled 675, which is 25 fewer than last year.

The early bow season ran from September 25 through November 16. September precipitation which amounted to a record 12.27 inches created extremely wet conditions and hunters either took to the field with hip boots or were limited to hunting the higher knolls. The wet conditions apparently also restricted deer movement since the kill was exceptionally good. Approximately 75 deer were harvested during the season, most of which were taken by the 1,900 bowhunters who hunted during the opening weekend. After the big rush on opening weekend very few archers took advantage of the many opportunities to locate an isolated stand to kill their deer.

The nine day rifle season on bucks with the "quota system", whereby a party of four hunters could take an additional "any" deer, ran from November 20 - 28. Many of the 280 deer taken during the season were party deer. Illegal kill was unusually high this year as evidenced by numerous sightings and reports of dead does and fawns lying in the woods. Like all other refuge deer seasons hunting pressure was highest during the opening weekend when 1,200 hunters took approximately 200 deer. The lack of tracking snow may have contributed to the poorer success during the gun season.

Over 6,000 bowhunters thronged to the refuge for the opening of the late bow season on December 4th. Most of the hunting pressure was in Area 3 and hunters were behind practically every tree and clump of brush. Total kill for the late season was 320 with about 300 of these being taken during the opening weekend. Hunting pressure, as in the other seasons, dropped off after the first day. The second day of the season only 1,000 hunted the refuge and for the rest of the season hunting pressure was very limited.

Most hunters were reluctant to venture out on the weak ice and as a result this eliminated much of the "unsportsmans-like" conduct we have experienced in the past. Hunting success averaged 5% for the late season which by bowhunting standards is considered good.

Goose hunters in the Necedah area experienced a prolonged and successful season in 1965. The total kill for the Necedah flock was 1,740. Heavy crippling losses on the firing line resulted in an estimated crippling loss of 30 percent.

Of particular importance was the good distribution of kill on outlying farmlands as compared to previous years. Refuge crops provided an abundant supply of food on refuge lands but geese still established strong feeding flights to nearby farms. The following data was compiled at check stations and outlying farms during the 70 day season which ran from Oct. 9, through December 17.

Check Station Data

	<u>1965</u>	<u>1964</u>
Firing line kill	650	572
Outlying kill	<u>595</u>	<u>408</u>
Sub-Total:	<u>1245</u>	<u>1128</u>
Meadow Valley	200	300
Frost Meadows	45	
Sandhill Kill	<u>250</u>	
Sub-Total:	<u>495</u>	<u>300</u>
Total:	1740	1428

Outlying Kill

Madejczyk Farm	10
Parkers	100
Findysz	23
Carmody	25
Sieglers	100
Hunkins	39
Price	25
Kuntz	5
Mubarak	25
Kroll	20
Michalec & Malecs	15
Others	<u>208</u>
	595

The following table shows the kill figures and peak fall Canada goose populations for the past 7 years.

<u>Year</u>	<u>Peak Population</u>	<u>Firing Line & Outlying Kill</u>	<u>Meadow Valley & Sandhill Kill</u>	<u>Total</u>
1959	27,700	3,000	Unknown	3,000
1960	12,500	206	"	206
1961	14,500	835	"	835
1962	15,300	500	"	500
1963	13,100	933	"	933
1964	8,660	1,130	300	1,430
1965	9,800	1,245	495	1,740

Check stations were operated by the Wisconsin Conservation Department for the first nine days of the season and on the weekends thereafter. The outlying kill was tabulated by refuge personnel from spot checks and reports from neighboring farms.

Hunter numbers increased this year. WCD check station figures show that 2,228 hunted during the first week of the season as compared to 1,755 during the same period last year. The firing line pressure was heavier throughout the season until the second week of November when the last of the geese moved south.

Of particular significance is the amount of hunter-use the relatively small Necedah goose flock provides. The Canada goose population which peaked at 9,800 during the week of October 3 - 9 provided over 3,000 twelve hour use-days.

E. Violations

The following cases made by refuge personnel and U. S. Game Management Agents in 1964 were delayed in the U. S. Commissioner's Court due to the absence of a Federal Judge for the Western District of Wisconsin, absence of a U. S. Attorney or U. S. Commissioner. The cases were prosecuted by U. S. Commissioner James J. Bannen, LaCrosse, Wisconsin on March 20, 1965:

<u>Name</u>	<u>Violation</u>	<u>Fine</u>
Harold J. Pesch, Kewaskum, Wis	Hunt w/o deer tag	25.00
Kenneth Zeller, Madison, Wis.	Unauthorized parking	20.00
John Tremain, West Salem, Wis	" "	20.00
Edward W. Schroeder, Reedsburg Wis	" "	20.00
Thomas J. Rodenkirch, Madison, "	" "	20.00
Ronald E. Rady, Milwaukee, Wis	Unauthorized travel	25.00
Harold O. Emermann, Milwaukee	"	25.00
Willard J. Grell, Cedarburg, Wis	"	25.00
Donald J. Celichowski	"	25.00
David Mente, Reedsburg, Wis	Unauthorized parking	20.00
Edward J. McCabe, Onalaska, Wis	"	25.00
Robert Leis, Rockford, Ill.	"	20.00
Herbert A. Hansen, Madison, Wis	"	20.00
Bernard H. Grams, West Allis, Wis	"	25.00
Curtis R. Grams, Cudahy, Wis.	"	15.00
Keith D. Grams, Milwaukee, Wis.	"	15.00
Floyd D. Barth, West Allis, Wis.	"	15.00
Albert Furan, Edgerton, Wis.	"	20.00
Donald L. Czarnecki, Racine, Wis	"	25.00
Norman M. Ahrens, Beloit, Wis.	Unauthorized travel	25.00
Royal C. Hart, Brookfield, Wis	Unauthorized parking	15.00
Lynn Kramer, Sullivan, Wis.	"	25.00
Eugene K. Wick, Markesan, Wis.	"	25.00
Nick Van Cauteren, Hartford, Wis.	"	20.00
Virgil Szymczak, Milwaukee, Wis.	Unauthorized travel	10.00
Oliver K. Smith, LaCrosse, Wis.	Unauthorized parking	25.00

The following cases were made during the 1965 waterfowl season were also processed in the U. S. Commissioner's Court, LaCrosse, Wis.:

Rounds Metcalf, Wisconsin Rapids, Wis.	Baiting waterfowl	\$50.00
Sam Casey,	"	50.00
Dr. Roger Garrison,	"	50.00

The following violations occurred in 1965 and were processed in Juneau County State Court. All violators posted bond at Necedah, Wisconsin.

<u>Name</u>	<u>Violation</u>	<u>Fine</u>	<u>Court Cost:</u>
George Gauss, Chicago, Ill.	Hunt in closed area	25.00	3.00
Donald Gauss, Central Park, Ill.	"	"	"
Dennis H. Jacobs, Galesville, Wis.	"	"	"
Eugene R. Klinger, Winona, Minn.	"	"	"
Guy O. Davison, Winona, Minn.	"	"	"
David C. Davison, Winona, Minn.	"	"	"
Thomas Klinger, Winona, Minn.	"	"	"
David R. Copper, Ferryville, Wis.	"	"	"
Chalres L. Hiam, Ferryville, Wis.	"	"	"
Jan G. Klinger, Ferryville, Wis.	"	"	"
Roger A. Starkey, Ferryville, Wis.	"	"	"
Truman O. Anderson, Ferryville, Wis.	"	"	"
Robert Tongas, West Allis, Wis.	Over bag-limit mallards	25.00	"

F. Safety

Listed below are subjects covered during refuge safety meetings:

Jan. 18	Rudolph discussed accident reporting procedures and station safety hazards.
Mar. 31	Staff review of safety bulletins
May	Collins reviewed safety bulletins with refuge staff.
June	Gritman discussed safety bulletins and safe working practices.
July 21	Staff viewed safety film "To See Ourselves". Fire extinguisher location and replacement discussed.
July 30	Gritman showed films "One to a Customer" and "Stop them before they start". Wearing of safety equipment and fire hazards in buildings discussed.
Aug. 16	Lipke and Hanson discussed mowing hazards and precautions to be taken.
Aug. 23	Rector and Renaker gave talks on safe equipment storage and water safety.
Sept. 8	Gritman and Carter showed film on "Grass and Brush Fires". A list of refuge safety hazards was compiled.

- Sept. 20 Arrowsmith and Rudolph discussed lifting and handling materials. Then films, "Lifting, Man's Age Old Problem" and "Fireman at Your Door" were viewed.
- Nov. 10 Gritman and Arrowsmith gave talks on cold weather and expressway driving.
- Nov. 23 Carter gave a talk on use of power tools and equipment. The film "Safety Everywhere, All the Time" was shown.
- Dec. 21 Lipke and Rudolph gave talks on cold weather hazards; wearing of proper clothing and footwear, ice and vehicle travel. Collins gave a summary of safety accomplishments for the past year.

A safety committee was organized this year to advise the refuge manager on safety problems. Committee members are James Gritman, Robert Arrowsmith and Harold Carter. They have done a fine job of improving the safety attitude as well as make suggestions and recommendations on improving the overall safety program at this refuge.

A Woods Worker Safety Plan was prepared by James Gritman covering activities associated with forestry work.

A Safety Management Program Plan was prepared and approved by the regional office.

The following safety hazards were corrected during the year:

Replaced faulty wiring in Residence 8 garage.

Low-hanging sewer pipe in office basement was padded with a soft protective material.

Carbon tetrachloride fire extinguishers were removed from refuge buildings and replaced with CO₂ extinguishers.

Store dynamite and banding explosives in granary away from headquarters.

Pickup truck with gas barrel stored in building away from headquarters.

Periodic fire extinguisher checks and general house cleaning.

Chain saw chaps were purchased as protective clothing to prevent accidental cutting of legs.

Grounded the radio antenna to prevent lightning damage.

One injury resulted in a lost-time accident. On March 4, Robert Arrowsmith was struck on the head by a falling stove pipe as he was burning trash in the stove. The blow irritated an injury he sustained at Lower Souris refuge on 7/1/53 and required medical treatment. Lost time, 20 days.

Our station safety record as of December 31, 1965 was 278 days since a lost time accident.

VII. OTHER ITEMS

A. Items of Interest

A baiting case involving several prominent persons was made on opening of the goose season on the Findysz farm east of the refuge. Some of the people involved were a doctor from Wisconsin Rapids, the president of the Nekoosa-Edwards Paper Company, and a pitcher for the New York Yankees. One member of the refuge staff, a GMA, and the local warden staked out the area and apprehended six individuals after they had fired numerous shots and killed three geese. Three of the violators were subsequently fined \$50.00 each for hunting over a baited area.

The Wisconsin Conservation Department's Sandhill Game Farm located north of the refuge also got involved in a baiting situation this fall. Approximately 300 bushels of ear corn was spread on a road near the public shooting area. A local farmer reported the incident and after an inspection of the area by refuge manager Collins and GMA Reynoldson they were informed to clean up the corn or close the area to hunting. They chose to pick up the corn.

Harold Hanson, maintenanceman at this refuge for the past 17 years retired in December. Harold is 67 years old and retired at his doctor's urging. Harold was in charge of the farm program, fencing, posting, and other miscellaneous work. He worked under four refuge managers starting in 1948. The staff thinks highly of Harold because of his hard work, excellent cooperation, and wonderful personality. A party was held in Harold's honor attended by the refuge staff and their wives. He was presented with a companion piece of luggage as a retirement gift. The refuge will miss Harold and knowing him as we do, he will probably miss the refuge. He and Ethel will reside on their farm 6 miles north of Necedah on Highway 80.

Howard Lipke replaced Joseph Kotok as refuge manager trainee in January. Kotok transferred to the Upper Mississippi Refuge and a short while later transferred to the Ottawa Job Corps Center. Howard is 24, of Walkerton, Indiana, and a 1963 graduate of Montana State University. Howard spent $1\frac{1}{2}$ years as a WHP biologist with River Basins in Huron, South Dakota before transferring to the refuge system.

We were fortunate in having two summer students this year. John Rector of Michigan Technological University served as forestry aid and spent his summer on timber cruising, photo interpretation and timber sales under the direction of our refuge forester. John did fine work and returned to school in September to complete his senior year. Bill Renaker from Western Illinois University was our wildlife student. Bill's varied summer activities gave him an appreciation for refuge work, although he seems to lean more toward the information-education phase of wildlife management. Bill was friendly, cooperative and always willing to give a little extra to get the job done.

Two local boys, Joseph Coady and Jack Jasinski worked during the summer period as YOC students. They were a great assistance in helping with farm work, lawn care, painting, and other minor jobs. These boys did such a fine job that we hope the program continues and we are able to hire more YOC's next summer.

A young raccoon adopted by the Collins children in June was not long in winning the hearts of the refuge staff. "Ranger Rick" as she came to be known stayed in the headquarters area all summer and fall begging for handouts. She was a tremendous attraction to visitors who came to view the geese as well as the numerous tour groups that visited during the fall. Ranger made several guest appearances at the Necedah grade school and two stories with pictures appeared in the Juneau County Chronicle. Ranger decided to stay with us through the winter and is presently hibernating under the shop coal shed.

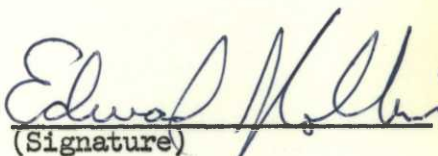
The economy of this area should receive a big boost with the opening of the Triple "P" Company. The company is engaged in manufacturing various gaskets and presently employees approximately 150 people. They hope to expand their operation and raise the number of employees to about 250.

B. Photographs by Collins, Lipke and Gritman

Credits: Collins, II-A, VII and editing
 Lipke, I-B, II-B-C-D-E-F-G-H-I, III-A-B-C, IV-A-B-C-E-F,
 V, VI-A-C-D-F and NR forms
 Gritman, III-D-E-F, IV-D
 Rudolph, I-A, VI-B-E, photo mounting, typing and
 assembly

SIGNATURE PAGE

Submitted by:


(Signature)

Edward J. Collins

Refuge Manager

Title

Date: February 23, 1966

Approved, Regional Office:

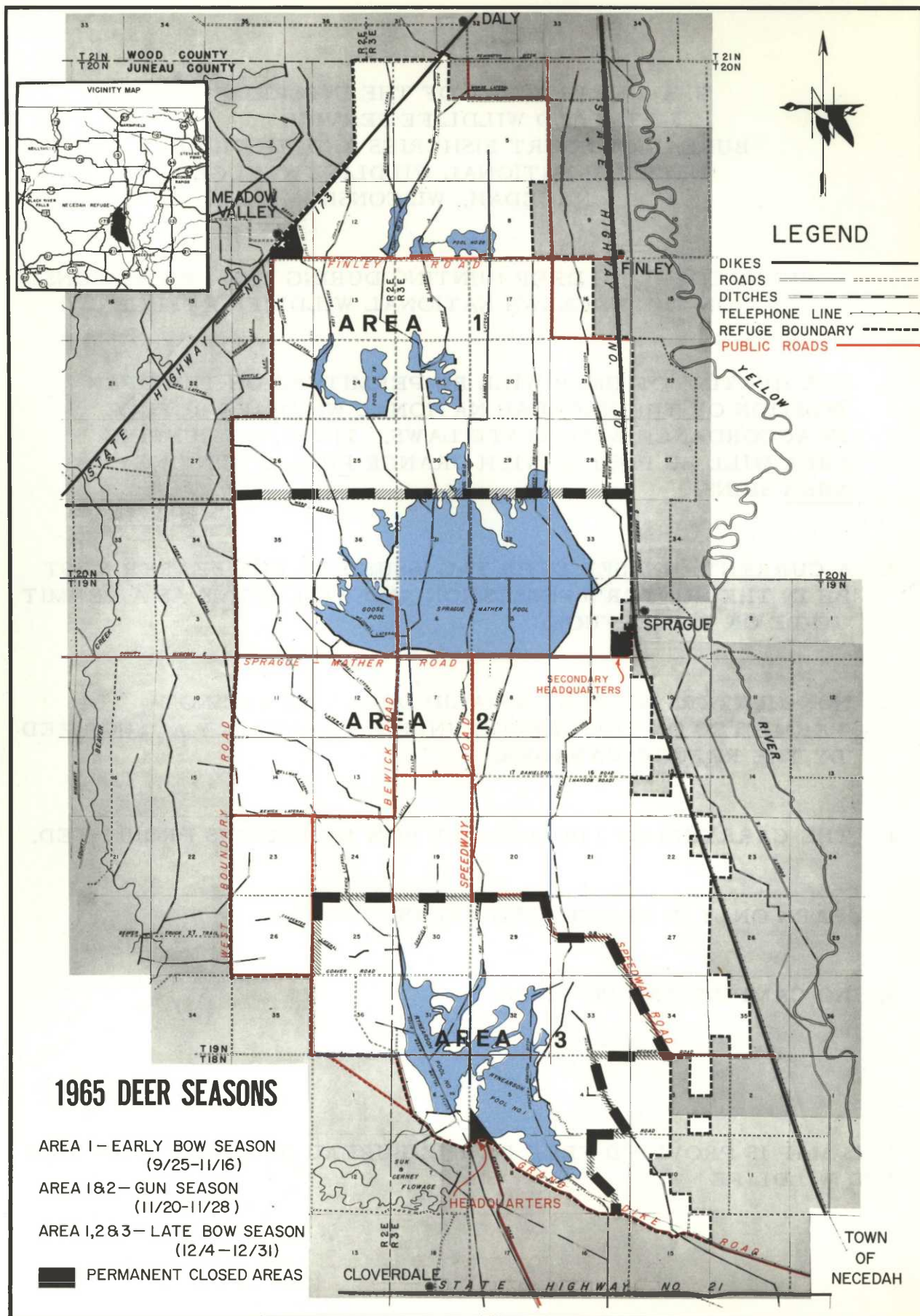
Date: March 11, 1966
(Signature)*Asst.*
Regional Refuge Supervisor

NECEDAH NATIONAL WILDLIFE REFUGE

UNITED STATES
DEPARTMENT OF THE INTERIOR

JUNEAU COUNTY, WISCONSIN

FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE



COMPILED IN THE BRANCH OF ENGINEERING

MINNEAPOLIS, MINNESOTA

JANUARY, 1960

FOURTH PRINCIPAL MERIDIAN

Scale 0 1 2 3 4 5 6 7 8 9 10 MILES

TOWNSHIP
DIAGRAM

MEAN
DECLINATION
1960

3R WIS 274 409

U. S. DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
NECEDAH NATIONAL WILDLIFE REFUGE
NECEDAH, WISCONSIN

RULES COVERING DEER HUNTING DURING THE 1965 SEASONS
ON THE NECEDAH NATIONAL WILDLIFE REFUGE

1. THE HUNTING OF DEER WILL BE PERMITTED ON THE OPEN PORTION OF THE NECEDAH NATIONAL WILDLIFE REFUGE IN ACCORDANCE WITH STATE LAWS. THE OPEN HUNTING AREA WILL BE POSTED WITH ORANGE PUBLIC HUNTING AREA SIGNS.
2. A CURRENT, UNUSED DEER TAG ISSUED TO THE BEARER MUST BE IN THE HUNTER'S POSSESSION AND WILL SERVE AS A PERMIT TO BE ON THE REFUGE.
3. NON-HUNTERS WITHOUT A VALID DEER TAG ARE NOT PERMITTED ON THE REFUGE UNLESS ESPECIALLY AUTHORIZED BY THE REFUGE MANAGER.
4. THE CARRYING OF FIREARMS BY BOW HUNTERS IS PROHIBITED.
5. PARK ONLY IN DESIGNATED AREAS.
6. NO CAMPING AND NO FIRES.

THIS MAP IS PROVIDED FREE BY THE BUREAU OF SPORT FISHERIES
AND WILDLIFE

May 16, 1965 Control burn area south of Norway pine plantation. In lower left is the Hanson agricultural unit which was planted to a grass mixture this summer. In the background is the 2,500 acre Sprague-Mather Pool.

Collins



May 16, 1965 Canfield agricultural units in relation to the Sprague-Mather Pool (upper-right). Farming operations will be centered on these units in the immediate future. The timbered areas are an oak-jack pine mixture.

Collins



May 16, 1965 Parham-Becker agricultural unit with control burn area to the left.
The Laske unit (left-center) was seeded to alfalfa in June. The upper portion
of Ryneerson Pool 1 can be seen in upper left of photo.

Collins





Refuge staff at Harold Hanson's retirement party; l. to r.
Collins, Rudolph, Hanson, Gritman, Carter, Arrowsmith, Lipke.
Roll 30



Harold and Ethel Hanson were the guests-of-honor at Harold's retirement party. Harold spent 11 years with the Bureau before retiring on December 20. He was a WAE Maintenceman. Roll 30 Collins



Manager's residence with a fresh blanket of snow.
R-O, E-12 Collins



January - Start of construction of office addition. R-7, E-5
Collins



January - Contractor William Nelson's crew attempting to
complete office addition shell before the winter snows.
R-7, E-6 Collins



March - Headquarters office building gets new shingles.
R-8, E-1A Collins



January - Slash disposal, outbreak of Ips bark beetles necessitated sanitary cut on 2 acres of 30 year-old Norway pine plantation located in Sec. 7, T19N-3E. R-6, E-18
Gritman



February - Strip cutting of jack pine. Pine cut in alternate strips five chains wide. Sec 20, T19N-3E. R-10, E-4 Gritman



Aerial view jack pine cut in 5 chain alternate strips. Williams agricultural unit (middle) and Ryneerson Pool No. 2 in drawdown status in background. R-18, E-12 Gritman



March - WCD personnel banding turkeys on the refuge near the Bewick Trail. Refuge staff assisted in the operation.
R-8, E-4A Collins



April - 60 trainees from the first Basic Refuge Manager Training School, Arden Hills, Minnesota on tour of the refuge. Martin



April - Heavy spring runoff had water over structure No. 18. This was the beginning of a year of threatening high water levels. R-8, E-21 Collins



March - New APW riser stoplog structure on Pool 9 washed out because of poor design. R-10, E-5 Collins



May - Fire fighting equipment standing by prior to Parham
Unit controlled burn. R-11, E-13A Gritman



May - Parham Unit before burn; note heavy willow growth
in background. R-11, E-14A Gritman



May - Start of a controlled burn. R-11, E-5A Gritman



May - Parham Unit immediately after burn, 60% of willow was killed. R-11, E-6A Gritman



June - Summer Aids and Youth Opportunity Corps boys, left to right, Jack Jasinski (YOC) John Rector (Forestry Aid) William Renaker (Wildlife Aid) and Joe Coady (YOC)
R-19, E-7 Lipke



June - Picnic area adjacent to south edge of Sprague-Mather Pool. R-14, E-13 Collins



Ranger Rick, the female raccoon has been the Collins girls pet and refuge mascot since early this spring.
R-21, E-1 Collins



Raccoon predation on mallard nest. Predators continue to limit refuge production. R-13, E-1 Lipke



July 1 - Fishing on Sprague Pool opening day. Fishing success was down over previous years. R-12, E-13 Collins



July - Permittee Becker loading pulpwood - Ford diesel and trailer hauls 13 cords per load. R-12, E-1 Gritman



July - This 72 foot CMP water control structure was installed under the APW contract in December, 1964 and washed out in March 1965 due to poor design. The structure had to be removed and redesigned with 2 diaphragms placed each side of the riser. R-14, E-5 Collins



July - Bob Arrowsmith caught in the act of being himself. Really Bob is retrieving bands from the washed out APW structure. R-14, E-10 Collins



July - Descriptive story of refuge operations in new glass cased information board. R-17, E-18 Lipke



September 11 - Manager explaining refuge operation to visitors at information board during Bowshoot weekend. R-20, E-5 Collins



Bill Renaker, Wildlife Aid, banding one of the 234 doves captured this year. Bill hit an all time record for number of birds banded. R-15, E-13A Lipke



June - Cooperator banding 3 Osprey nestlings on Potter's Flowage west of refuge with assistance of refuge personnel. Several Osprey were seen on refuge pools during the summer. R-12, E-8 Collins



Steam engine located at Necedah Pallet Company which was used as a power source until just a few years ago. We were not able to requisition this equipment for our farming program. R-20, E-11



July - Assistant Manager Lipke checking buckwheat seed production on Upper Canfield Unit. Both buckwheat and corn produced excellent crops this year. R-16, E-1 Collins



August - 50 year-old bridge on Canfield road and Little Yellow River Ditch before removal. R-19, E-12 Lipke



September - Harold Carter, Operator General, backfilling twin 44"x72" culverts on Canfield road which nearly washed out shortly after installation. Over 12" of rain in September caused erosion and damage to several refuge dikes and water control structures. R-22, E-0 Collins



July 28 - This group of Camp Fred Loock boys was one of several tour groups to visit the refuge this year.
R-16, E-10 Lipke



September - Jim Gritman conducting tour for students from Tomah Public School - Rynearson Pool 2. R-23, E-6 Lipke



August - Jack Jasinski and Joe Coady (YOC boys) putting
a coat of paint on the headquarters office building.
R-15, E-2A Lipke



August - Two 6x6's are needed to move lowboy and dragline
over sandy refuge roads to new job site. R-17, E-2 Lipke



August 17 - Harold Hanson mowing rye on middle Canfield
Unit. R-19, E-2 Lipke



August 23 - Hanson discing under mowed rye on middle
Canfield. Resulting rye browse received heavy use by
geese. R-19, E-17 Lipke



Headquarters building and landscaping. Completed office addition contains an office for the manager and a combination library and conference room. R-15, E-1 Lipke



September 30 - Refuge Clerk Vern Rudolph telling a tour group about Ryneerson Pool 2. The observation blind was erected in August for the numerous visitors that come to see the geese in the fall. R-23, E-2 Lipke



Corn and buckwheat strips on Upper Canfield Unit.
R-14, E-14 Collins



September 22 - Sandbagged structure No. 27. Water levels
were 8" over the structure and caused considerable damage
to the west wingwall. R-22, E-9 Lipke



September 11 - Parking lot at the Necedah Bowshoot. An estimated 2,500 attended the shoot this fall.
R-21, E-4 Collins



September 11 - Bowhunters sharpening their aim at the Necedah Bowshoot prior to the opening of early bow season. R-21, E-6 Collins



October - Woggon and Arrowsmith grading north-south road
along middle Canfield agricultural unit. R-26, E-3 Collins



Bowhunters during the early bow season removed 75 deer
from the refuge. The season extended from 9/25 to 11/16.
R-28, E-0 Lipke



October - Canfield road west of Bewick Lateral before raising the grade. R-25, E-13 Collins



October - Canfield road after Operator General Harold Carter raised the grade 2 feet. This section will be leveled and graveled in the spring providing us with excellent east-west travel through the refuge. R-25, E-11 Collins



October - Harold Carter and Howard Lipke with 2 of the 623 Canadas banded this fall. The birds were put in sacks so blood samples could be taken for blood disease studies conducted by the U. of Wis. R-24, E-4 Collins



October - Dr. Trainer and Mr. Cook from the University of Wisconsin taking a blood sample from one of the Canadas trapped. 10 cc.'s of blood were taken from 100 geese. R-24, E-16 Collins



October - Vern Rudolph inspecting Japanese millet seeding
in Rynearson Pool 2. R-25, E-1 Collins



October - Canada geese over Rynearson Pool 2.
R-23, E-11 Collins

December 4 - Parking lot north of Williams gate during bow
season. More than 6,000 hunters participated during opening
day. R-27, E-4 Collins





December - A happy hunter with one of the bigger bucks taken during the late bow season. This picture appeared in the Mauston newspaper. R-27, E-8 Collins



December - Kim and Susie Collins holding a turkey which was found sick in the woods during the late bow season. Tests conducted at the University of Wisconsin showed no signs of an epizootic. R-27, E-13 Collins



December - Two hunters transporting a deer across the ice
on Rynearson Pool 1. Roll 28, E-8 Lipke



December - Team effort by four late bow season bowhunters.
Hip boots were needed during all three of the refuge deer
seasons because of the rainy fall season. R-28, E-5 Lipke



December - Clover planting on Upper Canfield Unit which was wallowed out by geese in October. R-29, E-9 Lipke



December - Extremely wet conditions and heavy goose use left little of the clover planting. R-29, E-11 Lipke



December - Gritman and Arrowsmith getting new structure sections ready for placement. Stoplog riser section in foreground, new CMP with diaphragm attached in background. R-29, E-114A Collins



December - Riser being dropped into place. R-29, E-18 Collins